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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,770	03/30/2004	Kazuhiko Matsumoto	36609	4956

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EXAMINER

HAJNIK, DANIEL F

ART UNIT	PAPER NUMBER
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2671

DATE MAILED: 01/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/812,770	Applicant(s) MATSUMOTO, KAZUHIKO	
	Examiner Daniel F. Hajnik	Art Unit 2671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 30 March 2004.

2a) ☐ This action is FINAL.

2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-5 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on 06 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☒ All b) ☐ Some * c) ☐ None of:

1. ☒ Certified copies of the priority documents have been received.

2. ☐ Certified copies of the priority documents have been received in Application No. _____.

3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)

Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 8 to 10, 11A, and 11B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. These figures are explained and described as conventional in the background section of the specification (pg. 4, lines 5-7). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

1. Claim 1 is objected to because of the following informalities: Please change "one or more common volume data storage unit" to "one or more common volume data storage units". Appropriate correction is required.
2. Claim 3 is objected to because of the following informalities: Please change "server manager performs controlling to transmit volume data" to "server manager controls transmission of volume data". Appropriate correction is required.
3. Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 5 claims "the

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image requests are data concerning to angle and position" wherein claim 1 claims "process image data in accordance with image requests concerning angle and position". Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim Rejections - 35 USC § 103

1. Claims 1 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abolfathi (US Pub 2003/0207227, herein referred to as "Abolfathi") in view of Oikawa (US Patent 5963211, herein referred to as "Oikawa").

As per claim 1, Abolfathi teaches the claimed "image display units" by teaching of "client computers 104-105" (paragraph [0048]) and by teaching of upon request "displaying a three-dimensional computer model" (paragraph [0018]).

Abolfathi teaches the claimed "one or more volume data storage unit" by teaching of "3D volumetric data" (paragraph [0038]), by teaching of "transmitting the computer model from the treatment provider computer to the server" (paragraph [0018]) and by teaching of "the storage ... of models" (paragraph [0071]).

Abolfathi teaches the claimed "formation of images requested" by teaching of "forming patient data visualization in response to a user request" (paragraph [0014]).

Abolfathi teaches the claimed "image requests concerning angle and position" by teaching of a variety of views (paragraph [0015]) where the views are from a variety of angles and positions.

Abolfathi teaches the claimed "volume data storage unit transmits the necessary volume data" by teaching of "the storage and transmission of models" (paragraph [0071]) where model transmission would require the necessary volume data.

Abolfathi does not explicitly teach the claimed "image data processing units". Oikawa teaches the claimed limitation by teaching of in figure 2B, pieces 9 and 10 that can be combined to form a data processing unit where a plurality of these data processing units are shown in parallel.

Abolfathi does not explicitly teach the claimed "a computation server manager". Oikawa teaches the claimed limitation by teaching of "calculations respectively allocated to the plural processors, concurrently executing the sub-processes by the plural processors according to the volume data" (col 3, lines 16-20) where such functionality would require a calculation and allocation manager (computation server manager).

Abolfathi does not explicitly teach the claimed "computation server manager makes a decision to switch data processing ... so that a part ... performed by operative one ... will be replaced ... by another one including a state of low load". Oikawa teaches the claimed limitation by teaching of "3D image generation process means including a plurality of processors for estimating a quantity of calculations necessary for the creation process of the 3D image according to a portion of the volume" (col 3, lines 10-14) and by teaching of "subdividing the generation process into subprocesses and thereby substantially equalizing the quantities of calculations respectively allocated to the plural processors" (col 3, lines 15-18). Such functionality would need to recognize

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low load processors for equalization and would need to be able to switch processing to multiple processors.

Oikawa would be combined with Abolfathi by incorporating the parallel 3D image generating apparatus of Oikawa (figure 2B, piece 4) into the server of Abolfathi (106). It would have been obvious to one of ordinary skill in the art at the time of invention to combine Abolfathi and Oikawa. One advantage to the combination is provided by Oikawa, which teaches of allocating processing between a plurality of processors (col 2, lines 45-47) which results in a minimization of acquisition of volume data (col 50, line 52). Abolfathi suggests the need for such functionality by teaching of "large volume of data ... transmission ... can be expensive and time consuming" (paragraph [0071]). Abolfathi further suggests the usefulness of a system like Oikawa by teaching of "The server 106 ... can be a server farm that can distribute processing and communications activity across a computer network so that no single device is overwhelmed" (paragraph [0048]). By combining these references, the image processing performed by the computational processors of Oikawa (see figure 2B, piece 4) can perform the image processing of the server (106) or servers of Abolfathi (paragraph [0048]).

As per claim 5, Abolfathi teaches the claimed "the image requests are data concerning to angle and position" by teaching of a variety of views (paragraph [0015]) where the views are from a variety of angles and positions.

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2. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abolfathi in view of Oikawa in further view of Alford, Jr. (US Pub 2003/0158884, herein referred to as "Alford").

As per claim 2, Abolfathi does not explicitly teach the claimed "computation server manager decides the switching, if the same volume data ... are not present in the suspended image data ... as a destination of the decided switching ... to transmit the volume". Alford teaches the claimed limitation by teaching of "If a resource overload lasting more than a threshold period of time is detected, the resource management software may located resources that are either unallocated or that are allocated but are not being used and automatically assign or re-assign them to the overloaded partition" (paragraph [0043]) where the act of locating unused resources would require checking to make sure the data being processing is not present in those resources.

It would have been obvious to one of ordinary skill in the art at the time of invention to combine Alford with Oikawa and Abolfathi. Abolifathi suggests the combination by teaching the usefulness for such functionality that Alford offers by stating "During load balancing, if one server is swamped with requests, excess requests are forwarded in another server with more capacity" (Abolifathi, paragraph [0048]).

Abolfathi does not explicitly teach the claimed "additional information". Oikawa teaches the claimed "additional information" by teaching of rendering parameters (addition information) (col 3, line 20), which are associated with volume data (col 3, line 20).

As per claim 3, the reasons and rationale for the rejection of claim 2 is incorporated herein. Abolfathi does not teach the claimed "when overload is imposed ... the computation server manager judges whether to make a part of volume rendering be handed over to a second image data processing unit having idle computation resources" and the claimed "when a decision is made ... the computation server manager performs controlling to transmit volume data ".

Alford teaches the claimed limitations by teaching of "If a resource overload lasting more than a threshold period of time is detected, the resource management software may located resources that are either unallocated or that are allocated but are not being used and automatically assign or re-assign them to the overloaded partition" (paragraph [0043]) where the act of automatically assigning or re-assign resources would involved copying of needed or required data for processing.

Abolfathi does not explicitly teach the claimed "makes the second image data processing unit execute the data processing". Oikawa teaches the claimed limitation by teaching of "Each processor executes in a concurrent manner the process ... to generate a 3D image according to the volume data" (col 3, lines 30-32).

As per claim 4, Abolfathi does not explicitly teach the claimed "computation server manager stores identification names ... in a memory in advance". However, Abolfathi does teach of "the tooth models by the corresponding patients" (paragraph [0071]) where such functionality would need identification names to organize the numerous models. Further, Abolfathi teaches of "The dental server 106 stores

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information associated with patient history on-line in a secure manner" (paragraph [0049]) where such a security concern would be a good reason to transmit identification names in advance to prevent network traffic confusion during transmission.

Abolfathi does not explicitly teach the claimed "inquires of the memory whether the same volume data are already sent or not". However, Abolfathi does suggest this by teaching of "To reduce transmission problems arising from large size of the 3D model, in one embodiment data associated with the model is compressed" (paragraph [0071]). It would have been obvious to one of ordinary skill in the art to check whether volume data has already been sent in order to reduce transmission time associated with large sized models.

Abolfathi does not explicitly teach the claimed "computation server manager performs controlling to copy additional information from a data processing unit to be suspended to another data processing unit as a destination of handover of the volume data". Alford teaches the claimed limitation by teaching of "If a resource is re-allocated to the partition with the over-burdened resource, upon termination of the job ... the resource will be de-allocated from the partition and re-assigned to the original partition" (paragraph [0049]) where the act of re-assigned to the original partition would likely involve copying needed or required data back into the original partition.

Abolfathi does not explicitly teach the claimed "make the handover destination data processing unit execute". Oikawa teaches the claimed limitation in col 3, lines 30-32.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel F. Hajnik whose telephone number is (571) 272-7642. The examiner can normally be reached on Mon-Fri (8:30A-5:00P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka J. Chauhan can be reached on (571) 272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Hajnik 1/9/06

DFH

Ulka Chauhan
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SUPERVISORY PATENT EXAMINER